**TABLE OF CONTENTS**

**INTRODUCTION**

**Statement of the Problem**

**Review of Literature**

**Statement of the Hypothesis**

**METHOD**

**Participants (N)**

**Instruments (s)**

**REFERENCES**

**APPENDIX (CES)**

**INTRODUCTION**

**With the inclusion of students from non-English speaking backgrounds, disabilities, diverse cultural backgrounds, educators are compelled to rethink their teaching and instructional practices.**

**The homogeneity of yesteryear has been replaced by widespread diversity, however, in many instances teachers do not appear to have adjusted their methods to keep abreast of these trends.**

**STATEMENT OF THE PROBLEM**

**Regular classroom teachers make very few modifications in their instruction to suit the needs of students of various ability in their classroom. There is a tendency to “teach to the middle,” which can cause boredom in gifted students and confound students at risk resulting in poor achievement in both groups.**

**STATEMENT OF THE HYPOTHESIS**

**HR 1.** **If grouped by learning styles, twenty-five second grade students at PS X in Brooklyn, N.Y. will improve their math scores over a six week period.**

**INSTRUMENTS**

**Student survey**

**Parent Consent Form**

**PARTICIPANTS**

**Twenty-five second grade students at an elementary school in Brooklyn, NY.**

**Fifteen girls and ten boys.**

**General education classroom.**

**Review of Related Literature**

Educational institutions continue to search for ways to deliver effectiveness in diversity education. Educators and researchers have long been concerned with identifying how individuals learn. Understanding learning styles can help educators facilitate, structure and validate successful learning for all students (Pitts, 2009).

Sims and Sims (1995) point out that researchers have learned a great deal over the last fifty years about learning styles and how identifying and teaching through learning styles can improve students’ test scores and increase content knowledge.

Learning styles has become a well known concept in the Nordic nations and a pedagogical platform for recognizing and responding to individual differences ( Dunn, Honnigsfeld, Doolan, Bostrom, Russo, Schiering & Tenedero2009). Politicians and publishing firms have recognized and supported the concept. Learning styles generated political debates and legislative mandates, that is, the federal requirement that all special education students be provided individualized educational plans based on their learning styles.

According to the 2oth Annual report to Congress on IDEA (U.S. Department of Education 2005) roughly 96% of general education teachers have students with learning disabilities in their classrooms. Of the teachers, 9 of10 teachers have at least three students with IEPs. However, the challenges that confront present day teachers are not limited to students with disabilities.

Today, students come from increasingly culturally and linguistically diverse backgrounds in which parental expectations and community norms may be at odds with traditional schooling (Rock, Gregg, Ellis & Gable, 2008).

In the U.S., the No Child Left Behind (2001) legislation shifted educators’ focus onto standardizing and measuring student performance. Everyone recognizes that student diversity has increased substantially, cost more than education for native-born Americans and is more difficult to deliver differentiated instruction (Dunn, Griggs, Olson, Beasley & Gorman,1995).

A major drawback of traditional instruction is that many teachers “teach to the middle” (Rock, 2008) which means that the needs of a growing number of students will go unmet. Traditional instruction has a particularly harmful effect on students with disabilities. Who often display diverse cognitive abilities, evidence multiple and varied instruction needs and perform academically below their same age classmates Rock, Gregg, Ellis & Gable,2008).

Rock, Gregg, Ellis & Gable (2008) states that these deficits make students with disabilities especially vulnerable to a one-size-fits-all approach to instruction. The net result is that many of these students perform poorly on standardized tests and have high dropout rates, low graduation rates and have high percentages of unemployment.

One solution is what experts refer to as differentiating instruction (Pierce & Adams,2004).

Differentiated instruction is the process of “ensuring that what a student learns, how/she learns it, and how the student demonstrates what he/she has learned is a match for that student’s readiness level, interest and preferred mode of learning” (Tomlinson, Brighton, Hertberg, Callahan, Moon , Brimijoin Conover& Reynolds,2003).

Instruction may be differentiated in content, process, or product according to the student’s readiness, interest or learning styles.

How a student learns is as varied as the personalities in class. We can view learning styles through the lens of Gardner’s multiple intelligences, Dunn and Dunn learning styles model or many other theorist’s work, such as the findings of Vygotsky (Edwards, Carr & Siegel, 2006 ). Common to all these theories is the idea that different children learn in different ways. (Levy, 2008).

Differentiated instruction stems from beliefs about differences among learners, how students learn, differences in learning preferences and individual interest. Differentiated instruction integrates what we know about constructivist learning theory, l earning styles and brain development (Anderson,2007;

Hawkins, 2009).

Teachers who differentiate believe that every child is unique, with differing learning style and preference. Differentiation may be made by the teacher based on what they know about students/ learning preferences (i.e. intelligences, talents, learning styles) allowing students’ choices in working independently, with partners or as a team, or providing varied work spaces that are conducive to various learning preferences , (that is quiet work spaces, work spaces with tables instead of desks). Of the utmost importance to the teacher who differentiates is providing a learning environment and opportunities that exclude no child.

Doyle and Rutherford ( 1984 ) states that learners differ in a wide variety of ways and these differences are likely to influence how they respond to and benefit from a given instructional method or program. If instruction is adapted to specific intellectual or emotional “aptitudes” then it would seem that in comparison to standard teaching situations, more students would reach higher levels of achievement. This approach seems to offer an intelligent and practical framework for the organizational problem of dealing with diversity among students. Under most circumstances, students have to be grouped in some way for instruction. It is useful to have an educational justification, such as matching aptitudes of students with dimensions of teaching in forming such groups.

As Dunn and Dunn, Honigsfeld & Doolan (2008) points out, “ Differentiated instruction has become part of every school system’s lexicon but without learning styles as its cornerstone, no one knows how to differentiate instruction or on what to base differentiation”. Few educators are trained in the effective implementation of any styles other than conventional teaching.

Dunn and Dunn (1992) classified individuals as *analytical* or *global* learners. Dunn and Dunn found that analytical learners are more successful when information is presented step-by-step in a cumulative, sequential pattern that builds toward a conceptual understanding ( that is, a part to whole pattern of learning) these individuals prefer to learn in a quiet, well-illuminated, formal setting; often have a strong emotional need to complete tasks; like to learn alone or one-to-one with a teacher; prefer highly structured assignments; and rarely eat, drink, smoke, or bite an object while learning.

Global learners have the opposite set of characteristics, learning more easily when they master a concept first and then concentrate on the details. These individuals work well and concentrate better with distracters such as sound, soft lighting, an informal seating arrangement and some form of intake (e.g. eating or drinking). They take frequent breaks while studying and often work on several tasks simultaneously. Global learners prefer to work with peers and structure tasks in their own way (Dunn & Dunn 1992).

The real purpose of using a learning styles instrument is to most effectively differentiate instruction ; once a teacher identifies students’ approaches to learning as global or analytical, the teacher can implement different strategies to benefit the different learners.

The term “Learning Style” as is used by Kolb and Honey and Mumford describes an individual’s preference for understanding his or her experiences and transforming them into knowledge (Cuthbert, 2005).

Dunn and Dunn (1992) demonstrates that when students are taught using their preferred learning styles they show increased academic improved attitude toward instruction and better discipline than when they are taught using their non-preferred styles.

Learning style characteristics are preferences that people have for the way they learn. Individual differences in the way a learner approaches the task of learning is called his or her learning style. A learner’s preference for the visual (seeing) sensory mode over the auditory (hearing) sensory mode is an example of a preferred learning style characteristic (Reynolds & Gerstein,1992).

A learning profile refers to a student’s preferred mode of learning. Some students learn best alone. A student’s gender, culture, learning style and intelligence preference can shape their learning profile (Cox, 2008).

One concept in particular which has provided some valuable insight into learning in both academic and other settings is learning style (Cassidy, 2004). There is a general acceptance that the manner in which individuals choose to or are inclined to approach a learning situation has an impact on performance and achievement of learning outcomes. Whilst and perhaps because learning styles has been the focus of such a vast number of research and practitioner based studies in the area, there exist a variety of definitions, models, theoretical positions, interpretations and measures of the construct.

Much has been written regarding the challenges associated with changing pedagogical practices specifically transitioning from traditional teaching practices to differentiating instruction (Tomlinson,1995).

Changing one’s instructional style and capabilities is much easier to talk than it is to do, as difficult as it is essential. (George, 2005 ). Many teachers seem quite willing to continue with the traditional teacher-directed, whole class instructional model, even if they harbor deep uncertainties about their fundamental effectiveness. Further, few teachers have the time , energy or support for making substantial changes in how they teach, let alone the opportunity to arrive at a determination to do so.(Neely & Alm 1992). This is a real professional dilemma. On the one hand, many educators and policy makers strenuously and publicly affirm that diverse classrooms are best, while acknowledging that such classrooms only work well when all students, including the most able learners, experience challenges, success and satisfaction. On the other hand, every reflective educator knows how hard it is to change the way one teaches; moving from virtually total reliance on whole instruction to doing a satisfactory job of differentiating instructional require more than wishful thinking or traditional staff development. Abandoning the heterogeneous classroom however, is a central, critical, indispensable factor for accomplishing the traditional mission of the American public school.

Differentiating instruction is in the same way essential for accomplishing successful learning in the classroom. Without differentiation of instruction, the heterogeneous classroom will likely pass away and authentic learning will also perish; without such classroom, public schools of the future are far less likely to serve the democratic purposes for which they were designed (George,2005 ).

Several recent studies have shown positive outcomes from the use of differentiated

instruction. Beecher & Sweeny (2008) conducted a study at Central Elementary School which is located in a high performing suburban district bordering a large city. Teachers were encouraged to differentiate content and process, using learning centers, different reading materials and different strategies (Beecher & Sweeny, 2008). The study revealed that the use of differentiated techniques proved to be engaging, stimulated student interest and provided a gratifying experience for teachers and students. (Beecher & Sweeny, 2008).

A case study of one middle school’s experience with differentiated instruction by

Tomlinson (1995) revealed initial teacher opposition toward modifying instruction to suit

learner variance. Added to this, administrative barriers including teacher dissention

about being instructed to implement differentiated strategies by district officials,

impacted on the teacher’s sense of self efficacy (Tomlinson, 1995).

Other barriers included teachers perceiving differentiated instruction as a fad that would pass, concerns

over time allocated to prepare for differentiated lesson, unease over student assessments

and preparation for testing, disquiet regarding classroom management and perceived

teacher insecurity over a change in their role (Tomlinson, 1995).

differentiated techniques demonstrated that age was not a factor determining acceptance of the new exemplar, however the teacher’s attitude

towards change proved a more decisive factor, with teachers who embraced change

showing a greater inclination to adopt differentiation (Tomlinson, 1995). Teachers who experienced early successes with differentiation were more likely to persist. (Tomlinson,1995).

Principles garnered from the literature review serve as the basis for this research project. Firstly, from Vygotsky’s learning theory. Secondly, information drawn from research into the workings of the human brain and the revelations regarding the multiple intelligences and learning styles. Thirdly, Gagne’s Condition of Learning, acknowledges that the potential for learning is enlarged if learners are engaged, associate new learning with existing information and are allowed to consolidate this information in a manner suited to an individual learning style.

Progressing from this theoretical basis, this research will take cognizance of the tenets

supporting the move to differentiate instruction, including contemporary student

diversity, the dangers of teaching to the middle, research into the workings of the human

brain, investigations into individual learning styles and the theories of multiple intelligences.

Differentiated instruction does offer a viable alternative to addressing the diversity in the mixed ability classroom. It offers teachers and administrators an opportunity of translating and incorporating the plethora of research in this field, into workable practice in the classroom.

**Appendix A: Student Survey**

**The Global or Analytical Test**

**Complete the questionnaire below by checking the square.**

**Check all squares that you think are true about yourself as a learner.**

1. **\_\_\_\_\_ I enjoy doing more than one thing at a time.**
2. **\_\_\_\_\_ I can work well if when it is noisy?**
3. **\_\_\_\_\_ I prefer to sit at a desk when I study.**
4. **\_\_\_\_\_ I don’t eat or drink while I study.**
5. **\_\_\_\_\_ I find it difficult to sit in one place for a long time.**
6. **\_\_\_\_\_ I like to work alone.**
7. **\_\_\_\_\_ I usually finish my homework on time.**
8. **\_\_\_\_\_ I enjoy learning from posters, photographs, looking at**

**models.**

1. **\_\_\_\_\_ I like my teacher to check my school work.**
2. **\_\_\_\_\_ I prefer to have instructions written down I can check so**

**I can check them later.**

**Appendix B: Consent Form**

**May 25, 2010**

**Dear Principal,**

**I am currently enrolled in a graduate Childhood Education program at Brooklyn College that requires me to complete an action research project.**

**The focus of my research, will be differentiated instruction. Part of my research will involve a student’s survey, collecting student’s work and data all information gathered will be strictly confidential.**

**Potential benefits of this research include increasing my knowledge of how children learn, helping other teachers who are interested in differentiated instruction, and helping me reflect on and analyze my teaching practices.**

**I am hereby requesting permission to conduct this research in my class 2-201.**

**Sincerely,**

**Janice Congreaves**

**REFERENCES**

**Anderson, K. M. (2007). Differentiating instruction to include all students. *Journal of School Failure*,**

**57(2), 49-54. Retrieved from ERIC database.**

**Beecher, M., & Sweeny, S., M. (2008). Closing the gap with curriculum enrichment and differentiation:**

**one school’s story. *Journal of Advanced Academics*, *19 (3),* 502-530. Retrieved from ERIC database.**

**Cox, 5. (2008) . *Differentiated instruction in the elementary classroom. Education Digest, 52 - 54.***

**Retrieved October 21, 2009, from ERIC database.**

**Cuthbert, P. F. (2005). The student learning process: learning styles or learning approaches? *Teaching***

***In Higher Education*, *10(2),* 235-245. Retrieved from JSTOR database.**

**Cassidy, S. (2004). Learning Styles: An overview of theories, models and measures. *Educational***

***Psychology*, *24(4),* 419-444. Retrieved from JSTOR database.**

**Dembo, M. H., & Howard, K. (2007). Advice about the use of learning styles: A major**

**myth in education. *Journal of College Reading and Learning,* *37(2),* 101-109.**

**Retrieved from ERIC database.**

**Doyle, W., Ruterford, B., (1984). Classroom research on matching learning and teaching styles.**

***Theory and Practice*, *23(1),* 20-25.Retrieved from JSTOR database.**

**Dunn, R., & Dunn, K. (1992). *Teaching elementary students through their individual***

***learning styles: practical approaches for grades 3-6*. Boston: Allyn & Bacon**.

**Dunn, R., Griggs, S. A., Olson, J., Beasley, M. & Gorman, B. S. (1995).A meta-analytic validation of the**

**Dunn and Dunn model of learning-style preferences. *The Journal of Educational Research*, *88(6),***

**353-362. Retrieved from JSTOR database.**

**Dunn, R., Honnigsfeld, A., Doolan, L. S., Bostrom, L., Russo, M. S., Schiering, B. S.,**

**& Tenedero, H. (2009). Impact of learning- style instructional strategies on students’**

**achievement and attitudes: Perceptions of educators in diverse institutions. *The***

***Clearing House*, *88(3*), 135-140. Retrieved from ERIC database.**

**Edwards, C. J., Carr, S., Siegel, W. (2006). Influences of experiences and training on effective**

**teaching practices to meet the needs of diverse learners in schools. *Education, 126(3*),**

**580-592. Retrieved from ERIC database.**

**George, P.S.,(2005). A rational for differentiating instruction in the regular classroom. *Theory Into***

***Practice,* 44(3), 185-193. Retrieved from ERIC database.**

**Hawkins,V. J., (2009). Barriers to implementing differentiation: lack of confidence, efficacy and**

**perseverance. *The NERA Journal, 44(2), 11-16.* Retrieved from Wilson database.**

**Keefe, J. W. (1985). Assessment of learning style variables: the NASSP task force model. *Theory into***

***Practice*, *24(2*), 138-144. Retrieved from JSTOR database.**

**Klein, P.D., (2003). Rethinking the multiplicity of cognitive resources and curricular representations:**

**alternatives to “learning styles” and “multiple intelligences”. *Journal of Curriculum Studies,* *35(1),***

**45-81. Retrieved from JSTOR database.**

**Levy, H., (2008). Meeting the needs of all students through differentiated instruction: helping**

**every child reach and exceed standards. *Clearing House: A Journal of Educational***

***Strategies; Issues and Ideas, 81(4),* 161-164*.***

**Neely, R. O., & Alm, D., (1992). Meeting individual needs: a learning styles success story. *The Clearing***

***House*, *66(2),* 109-113. Retrieved from JSTOR database.**

**Pierce, R. L., Adams C., M., (2004).Tiered lessons: one way to differentiate mathematics instruction.**

***Gifted Child Today, 27 (2), 58-65.* Retrievedfrom Wilson database.**

**Pitts, J., (2009). Identifying and using a teacher-friendly learning-styles instrument. *The Clearing House*,**

***82(5),* 225-231. Retrieved from ERIC database.**

**Rock, M. L., Gregg M., Ellis E., & Gable, R, A. (2008) REACH: A framework for differentiating**

**classroom instruction. Journal of School Failure *57(2),* 31-47. retrieved October 21, 2009 from ERIC**

**database.**

**Reynolds, J., Gerstein, M. (1992). Learning styles characteristics: an introductory workshop. *The***

***Clearing*  *House*, *66(2),* 122-126. Retrieved from JSTOR database.**

**Sims, R. R., & Sims, S. J. (1995). *The importance of learning styles: understanding the***

***implications for learning, course design and education*. Westport, CT: Greenwood Press.**

**Tomlinson, C. A. (2001). How to differentiate instruction in mixed ability classrooms, 2nd ed,**

**chapter 2. Retrieved from http://www.ascd.org/publications/books/101043/chapters /**

**Tomlinson, C. A. (1995). Deciding to differentiate instruction in middle school: one school’s journey.**

***Gifted Children Quarterly* *of the Gifted,* 39(2), 77-87. Retrieved from http://gcq.sagepub.com**

**Tomlinson, C. A., Brighton, C., Hertberg, H., Callahan, C. M., Moon, T. R., Brimijoin, K., Conover, L. A.,**

**& Reynolds, T. (2003). Differentiating instruction in response to student readiness, interest and**

**learning profile in academically diverse classrooms: A review of literature. *Journal for* *the Education***

***of the Gifted,* *27 (2/3*), 119-45. Retrieved from Wilson database.**